

THE ORCHID

Mumbai, India

HOSPITALITY RATING: 5-STAR

ROOMS: 245

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LATITUDE: 19°N

The Orchid Hotel in Mumbai showcases eco-friendly business practices that can be replicated in the hospitality industry. It was envisaged as a hotel that would be taken not only as a benchmark in the hospitality industry, but also as a hallmark of eco-sensitivity in the world. - Dalai Lama

CONTEXT

The Orchid is located in the heart of rapidly growing suburbs with the domestic airport virtually in its backyard. In a polluted city like Mumbai, having won the accolade of being the most eco-friendly hotel is no easy achievement.

DESCRIPTION

The Orchid in Mumbai displays a heightened level of environmental sensitivity in its revolutionary architecture, design and interior decoration. Rehabilitation of the site, which originally included an old building, provides an interesting backdrop for this leading environmental business. The Orchid is flanked by drip irrigated greenery on either side providing the much needed break from pollution. The hotel while rather ordinary on the exterior, includes one of the largest array of environmental technologies ever assembled in a hotel building. Double glass doors open into an imposing 70-foot tall fibre fountain. Passive solar design including a rooftop pool to reduce heat loads on the structure is coupled with adequate daylighting via a central atrium. Triple glazed windows, an anomaly in most of Asia, provide increased thermal and acoustic insulation. The building is constructed from a variety of low resource consuming materials and is finished with low-VOC paint.

Guests are treated to a host of environmental products from recycled paper guest programs to herbal amenity products. A revolutionary eco-button allows guests to participate in the environmental activities by reducing their air conditioning uses. There are two special guestrooms for the physically challenged people.

Employees and management are actively engaged in the environmental operation of the hotel. Over 10,000 local students have been educated on the environmental features of the hotel. Employees have developed a CD that illustrates and educates viewers on the environmental design and performance of the hotel. And the director has spoken at numerous seminars about the environmental virtues of the project. The Orchid's commitment to environmental excellence is evident everywhere in the hotel. The property's mantra is "Deluxe need not disturb, Comfort need not compromise and Entertainment need not be insensitive."

INDUSTRY RECOGNITION

The Orchid Hotel is the first 5-star ECOTEL (1997) in Asia and the only ECOTEL in the world that is ISO 14000 certified (1996). Other awards include: PATA Gold award (2001), Green Globe Environmental Company award (2000), Green Globe Achievement award (2000), Hotel & Catering International Management Association Award - Best Environmental Policy (2000), Dr M.S.Swaminathan award for environment protection (2000), Federation of Hotels and Restaurant Association of India - Environmental Champion (1999-2000), Green Hotelier - Environmental award (1999), ECOTEL® Industry Pioneer award (1999), Green Globe Environmental Company award (1998), World Travel Market's (WTM) Environmental Company Awards (1998), and the Golden Peacock Environment Management Award.

SITING

- Drip irrigation reduces water use 50%.

DESIGN

- Depressions and protrusions in the facade plays an important role in reducing the surface passive solar gains.

- ❑ The building is designed with 72 rooms facing the atrium. These rooms are not directly exposed to the external elements thus reducing the heat load.
- ❑ Daylighting in the atrium has been achieved by skylight as an architectural element, detailed in a manner of doubly layered domes to reduce heat load and noise levels yet admitting maximum natural light in the atrium space.
- ❑ The swimming pool is located on the rooftop with 4 feet of water depth, which acts as an insulator from the heat. KoolDeck is applied around the swimming pool deck to reduce the glare and the surface temperature so that one can walk barefooted around the pool.
- ❑ The triple glazed windows are hermetically sealed double glazed unit with an added reflective glass pane. These triple glazed windows block the heat of the sun from entering the room and helps in conserving the air-conditioning energy. An added advantage is that prevents fabric and furniture colours from fading as the triple glazed unit prevents the infra red light from the sun to enter the room. These windows also help in effectively cutting out the noise pollution from India's busiest airport.

MATERIALS

- ❑ The cement, PPC (Portland Pozzalana Cement) contains 15-20% fly ash, as compared to OPC (Ordinary Portland Cement).
- ❑ Internal partitions are made from QED (Quite Easily Done) wall panels, which are made from fertilizer waste, instead of the red bricks, which are made from the topsoil of the earth. That's not all, these wall panels are reusable and save time from less curing, plastering and recurring.
- ❑ Another environment friendly alternative used is AAC (Autoclaved Aerated Concrete) as a material for the external wall structure. AAC is manufactured using approximately 60% fly ash. It is the brick substitute building material having excellent thermal insulation properties and better sound absorption coefficient than ordinary bricks.
- ❑ Despite its natural timber look the window frames, master control panel in the guestrooms and shutters are made from rubber wood. After producing rubber sap and the tree is cut down and cannot be used for any constructive purpose, as the wood acquired from the rubber tree is soft. The rubber wood then derived is processed and the upgraded wood, which has been vacuum, impregnated using unleachable type of timber preservative chemicals is kiln seasoned to ensure dimensional stability.
- ❑ The interior works are made from MDF (Medium Density Fibre), which is manufactured using cotton stalks. The cotton tree, which grows to a height of 5-6 feet, is cut down after yield and the tree is usually rendered useless. With the help of advanced technology, the waste stalks of the cotton tree go through a manufacturing process which includes chipping, sieving, washing and cooking of the fibre chips. After this lengthy procedure MDF is produced having all the features of natural wood.
- ❑ At the specialty restaurant called the "Vindhya" the entire interiors i.e. the woodwork has been made from wood recycled from old buildings.
- ❑ The exterior of the hotel is finished with a water based paint with negligible VOC (Volatile Organic Compound) content of only 0.0125% and the paint used for interiors has 0% VOC.
- ❑ The hangers used in guestroom are made from sawdust.
- ❑ Herbal products are manufactured under an Ayurvedic license. These products are not tested on animals and do not contain any animal fat.
- ❑ Reusable cloth laundry bags used instead of the standard paper or plastic bags, in which the guests could send the clothes for laundering and the same will be delivered in reusable cane baskets wrapped in muslin cloth. A laundry button is incorporated in the master control panel, eliminating the use of laundry pick up tent cards.
- ❑ Newspapers are delivered, on request, in reusable cane baskets/cloth bags instead of the usual paper or plastic bags.
- ❑ "Eco Harvest" a basket containing an herbal pillow which induces sleep, a bunch of neem twigs, two aromatic oils & 5 age old herbs.
- ❑ The Orchid uses eco-friendly pens and pencils. The eco-pens are made using recycled cardboard, reprocessed plastic and scrap wood. The cardboard, which is used as the barrel, is free from chlorine. The plastic at the head and base is made from reprocessed ABS (a thermoplastic material that can be recycled and/or remolded). Scrap wood is obtained from discarded cases used for packing purposes.

- ❑ The eco pencils are not made of wood but of a non-toxic polymer with the use of natural fillers. Woodsaver pencils are made using a shaft, which is made of biodegradable materials such as talc, gypsum and clay.
- ❑ The stationery, guest services and minibar folders are all made from jute.

WATER

- ❑ All taps contain special aerators, which increase the water's force and reduce outflow, saving water. Using these aerators saves up to 50% of water. In addition in the Ecoteria taps operate on timers.
- ❑ The Geberit Concealed Cistern which uses only 6 litres of water per flush as against 15-20 litres used in conventional flushes, while the Geberit Urinal Flush Valve's infra red detector ensures a definite flush after every use preventing the unwanted flushing of timer set systems.
- ❑ Aquazone employs ozone which destroys all micro organisms including bacteria, virus, spores, mould, fungi etc. The resultant water is absolutely safe, pure, fresh and healthy. The water is free from chlorine. When drinking water is treated with chlorine (chlorine is a highly carcinogenic chemical), the residual chlorine in water is also consumed along with the water. On the other hand ozone, having half the life of only about 20 minutes, unreacted ozone reduces to oxygen, leaving no trace of toxicity in water. This makes it the most environment friendly treatment known today.
- ❑ Wastewater is recycled with the latest technology, treated and then reused in areas like air conditioning & gardening.

ENERGY

- ❑ Energy efficient PL lamps are used which provide as much light as ordinary bulbs, yet consume substantially less energy. What's more since guestroom lights come on only when the key card is inserted so there's no chance that lights or the air conditioner remain on once guests leave the room.
- ❑ Ozone depletion levels have been reduced to 99.55% using the more eco-friendly alternative R22 instead of CFC refrigerants. The mono screw chillers which have the least number of moving parts operate on a stepless efficiency range of 10% to 100%.
- ❑ Electronic reduced voltage soft starter energy savers employed in the A/C compressor. During the start, the motor acceleration is controlled by gradually increasing the motor current to a reference current ramp limit. In the energy saving mode the applied voltage is adjusted by sensing that the motor current is minimum.
- ❑ Attached to the air-conditioning system is the STL tank to store cold energy during off-peak hours. This stored energy is then used during the peak hours /periods reducing compressor overloading and cutting power consumption.
- ❑ The heat generated from the air conditioners provides hot water to the guestrooms, laundry, toilets and kitchen.
- ❑ Within the room the guest can participate in the energy conservation by pressing the ECO BUTTON on the master control panel placed alongside the bed. When the guest presses this button the air-conditioned temperature increases by 2 degrees making the room a little warmer. More than 30% of the guests participate daily in this Energy Saving Program and have received certificates from us along with a free subscription to *the Sanctuary* (an environment-based magazine).
- ❑ The mini bars used in the guestrooms by us save upto 40% energy, as it is equipped with "fuzzy logic" which senses the load inside the refrigerator and cools it accordingly. Also an added advantage is that these mini bars are CFC free.
- ❑ Steps have been taken to reduce air pollution by installing what is known as Air Scrubbers in the boiler outlet connected with the chimney. The boiler produces a high amount of carbon dioxide fumes which pass through the scrubber and is emitted through the chimney (the fumes emitted are clear white fumes instead of the dark/black fumes usually seen). This is because when the fumes pass through the scrubber water is sprayed and the carbon dioxide dissolves and settles down in the shower traps and clear fumes are emitted in the air. The consumption of water is 300-600 litres per hour for 1000-meter cube of gas, reducing the fume gas temperature from 250 degrees C to 50 degrees C. The water utilized in the air scrubber is recycled water from sewage treatment plant (STP). Similar type of equipment installed in the kitchen exhaust system is called air washer which works on the same principles.
- ❑ All vehicles owned by the hotel and cars hired out at the travel desk are outfitted to operate only on lead free fuel, which helps reduce air pollution. Additionally, the hotel owns a Cadillac which is

specially designed to run on compressed natural gas, which is far cleaner burning than diesel or gasoline.

OPERATION

- ❑ The Orchid in its endeavor to become a "zero garbage" hotel has taken various measures to reduce the waste being generated. To reinforce this they have undertaken vermiculture on the hotel site. Kitchen garbage is diverted to 9 bins built for the process. They are the first 5 Star Hotel in Mumbai to undertake vermiculture.
- ❑ The hotel handles almost 300 kg of organic waste each day using their array of 9 vermiculture pits. These pits produce rich fertilizer that the hotel sells for a profit. Old rice bags are used to pack and store the finished product.
- ❑ Fruits are served on request so as to avoid wastage.
- ❑ A separate recycling bin with a sticker for guest use is placed in all rooms.
- ❑ The garbage bags used by us are made from recycled plastic and milk pouches.
- ❑ All paper products at the Orchid contains at least 50% recycled content.
- ❑ There is no use of carbon paper made at the hotel, as the chemicals used in carbon paper are toxic which kill the micro-organisms that decompose solid waste.
- ❑ The water flask in the guestrooms are left empty which are filled after asking the guest for his preference of hot, cold or room temperature water as water already filled and kept in the flask leads to guest perception of the water being stale, which they promptly ask to be replaced. The glasses too are turned upside down and kept in the tray, thereby doing away with having to wrap each glass in a plastic bag and consequently generating more waste for the hotel.
- ❑ Anti Cockroach Herbal Treatment has been recently introduced and is the first of its kind in India to eradicate cockroaches. This herbal paste contains extracts from herbs and the treatment is totally different than the conventional spray treatment. By using this treatment there are no health hazards, and the use of any poisonous chemicals has been eliminated. No cleaning is required after the treatment is done hence there is no wastage of water, detergents etc. This medicine is in the form of a paste and it is applied to all nooks and corners in the form of small globules in the premises, which is to be treated. This paste can also be applied in refrigerators, ovens, toasters, microwaves mixers, computers as it is non-poisonous.

ENVIRONMENTAL MANAGEMENT

- ❑ ISO 14000 certified.
- ❑ The Orchid is the first major corporation to start the ALM (Advanced Locality Management) program anywhere in Mumbai. This is a program established in conjunction with the Municipal Corporation of Greater Mumbai (MCGM). Under this program, business or residents sponsor cleanups by contributing Re. 1/- per day. The Orchid's organized the resources of 5 neighboring hotels, a number of local office buildings, 20 taxi owners and 2 shop owners in this groundbreaking program. Since the Orchid set the example, there are now over Corporate 600 ALMs in Mumbai.
- ❑ The Orchid participated in a major plastic cleanup effort during the summer of 2000. The hotel created a competition to collect the most plastic, and found 43 schools wishing to compete. Over 78,000 students collected a total 2.25 million plastic bags in under 50 days of the drive.
- ❑ The Orchid opens their doors to students to teach them the methods of environmental responsibility as well. Since 1996, over 10,000 students from the age of 5 and up representing 73 school and colleges have visited The Orchid as part of their environmental studies.
- ❑ Another method that the Orchid has employed to share their knowledge is through a CD-ROM developed during the Good Earthkeeping Seminar. This CD-ROM will serve as a jump-start towards taking individuals towards a better environment. The Orchid also distributes this CD-ROM to various educational institutions and environment organizations.
- ❑ The Orchid took part in cracking down on pollution-spewing motor vehicles by setting up a PUC checkpoint to catch motorists without the proper inspection licenses on their vehicles. The checkpoint was set up in association with 2 leading non-governmental organizations - the CLEAN Air Dignity Foundation, and the Transport Commissionerate of Maharashtra.
- ❑ The Orchid furthers its commitment to the environment and the community through active participation with a total of 12 Non-Government Organizations. Among them are Vasundhara which aims at environmental building awareness, and the Slum Rehabilitation Programme.
- ❑ The Director of the Orchid, Mr. Param Kannampilly, has been very active in sharing his experiences as well. He has spoken at a number of seminars on the environmental successes of the hotel.

CONTACT INFO

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<http://www.orchidhotel.com>

REFERENCES

The Orchid

<http://www.orchidhotel.com>

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<http://www.hvsecoservices.com/Orchidfacts.htm>